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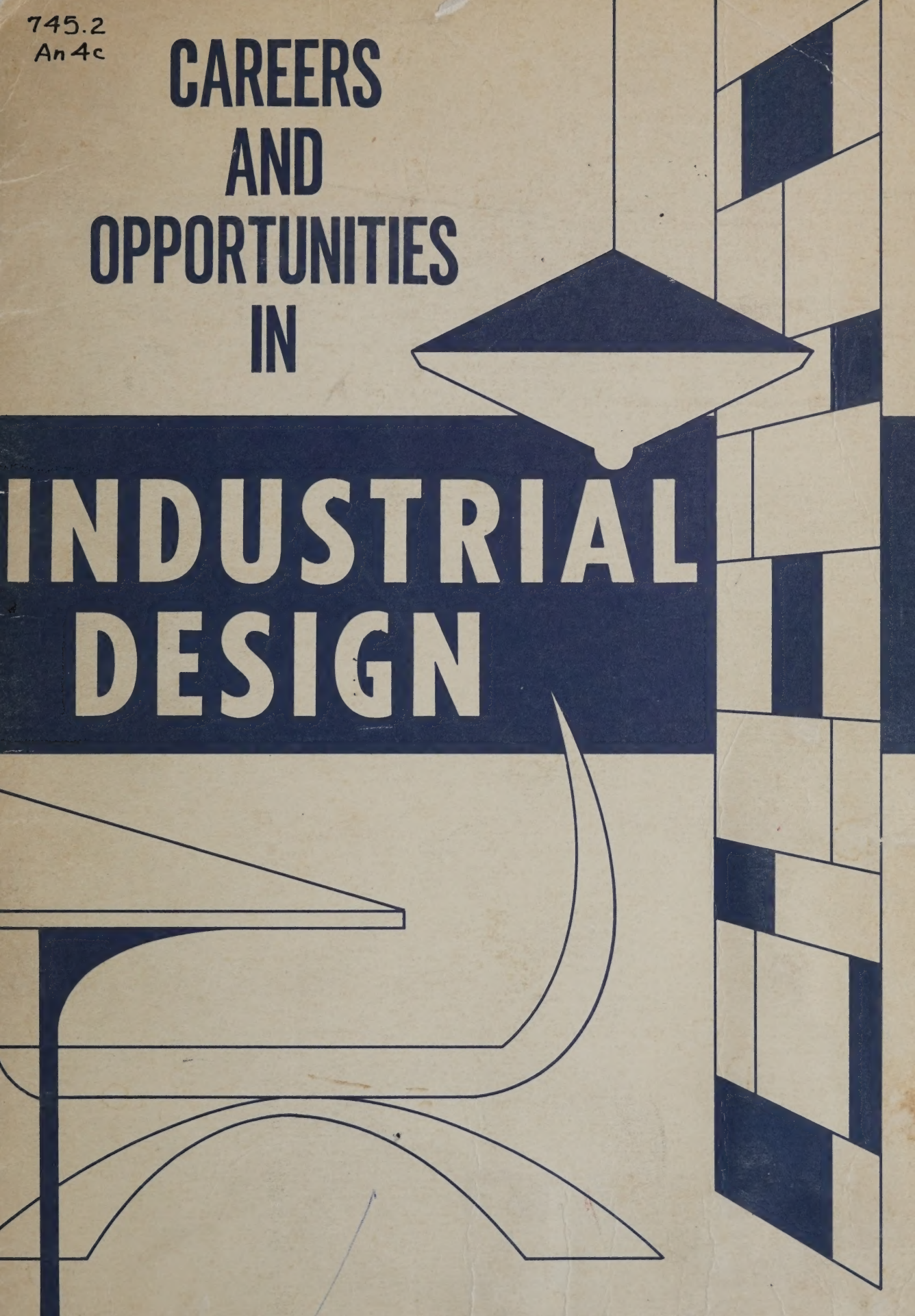

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CAREERS AND OPPORTUNITIES IN INDUSTRIAL DESIGN

By
Juvenal L. Angel, Director
Modern Vocational Trends Bureau

This 12,000-word monograph provides a complete description of Careers and Opportunities in Industrial Design, including opportunities, educational background, areas of specialization, where employment is found, financing an education in Industrial Design, advantages, disadvantages, remuneration, where to get more information, etc.

WORLD TRADE ACADEMY PRESS, INC.
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Monograph 66

To the Adviser ...

This monograph has been specifically planned as part of our research program on career and occupational planning. The Guidance Counselor of today faces a variety of problems. He must have occupational information at his fingertips which can be interpreted creatively in terms of individual need, time, place, and profession. He must get facts which are current, uncomplicated and truthful. We believe that the information in this monograph fills that need.

To the Student...

This monograph has been prepared to help you in your career and occupational planning. Every effort has been made to anticipate and answer questions you have. If the information offered here is helpful to you please tell your librarian or counselor. They will be glad to know.

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THE FIELD OF INDUSTRIAL DESIGN

The student considering a career in industrial designing will naturally seek a concise definition of the profession. But one is not readily available. The field is new, its scope is constantly expanding, and the Industrial Designers now in practice are inclined to analyze the field from the viewpoint of their own specialization. However, it is possible to satisfy the student's correct curiosity by discussing the common concepts of industrial design -- concepts accepted by all in the profession.

All products designed for consumer use -- with the exception of clothing, textiles and other "soft goods" -- benefit from the skills of the Industrial Designer. The mail order catalogs, glowing evidence of the plenty that is America's blessing, advertise article after article which can be improved in shape, packing, display, and color to increase sales appeal.

Gone are the days when a product had to have use value only. Today a manufactured product must be attractive as well as efficient and durable. This is the province of industrial design which deals with determining the shape, color, and overall appearance of a product which will attract the consumer and suggest use and value at a glance. A product is not considered ready for the assembly line until it has these basic characteristics, products of the Industrial Designer's skill.

This is not a small part of the work that goes into the end product by any means. Expensive tools and dies must be set to specified measurements before manufacture starts, a heavy responsibility for the Industrial Designer. His plans must take into consideration cost, usefulness, and engineering specifications. His design can well make the difference between financial gain or catastrophic loss for the manufacturer. In a very real sense, the Industrial Designer shares the burden of determining the final and complete model of a product.

Industrial Design, therefore, demands special aptitudes, training, and experience. The Industrial Designer is concerned with the use value of a product, but to the same degree is interested in making a product so attractive that it will appeal to the consumer market. He may restyle a product or create an entirely new form. He may change the shape of a round lipstick to an oval, design a jelly jar which will double for a beautiful water glass after its contents are consumed, or construct a contour chair which will provide maximum comfort.

The Industrial Designer is also concerned with architecture when it is considered in relation to merchandising. He has the skill to make physical equipment such as department stores, supermarkets, garages and filling stations attractive. His choice of color or shape or suggestions for landscaping are only part of the services he has to offer. His layout is designed to insure maximum use of the building. It provides efficiency which makes for satisfied customers whose wants are attended to quickly and results in increased profits for management.

The proficiency and skills which permit the Designer to accomplish this happy achievement include knowledge of the people who will use the structure. The good Industrial Designer never ceases his study of the consuming public. He knows their habits and wants, understands what will move them to buy a product or take advantage of a service. The filling stations which feature a one-minute car wash, for example, are prime examples of the Industrial Designers' work.

The Designer who is commissioned to work with architects on a large building for an industrial corporation must be fully acquainted with the corporation, its products, staff of employees and the interrelation between departments. The layout of the building will serve the physical needs of the corporation; its appearance will be a constant reminder of the impression the corporation wants to make on the public.

The role of the Industrial Designer in relation to the product of the manufacturer is manifold. His understanding of industrial machinery and the improvements he makes does more than increase sales and profits. It can help improve labor-management relations for workers. Employees in well-lit, pleasant and comfortable surroundings, working on lathes and machines which are easily controlled and safe, are more efficient and their production capacity rises.

The Industrial Designer is often the direct link between consumer and manufacturer, and he may coordinate all channels by which the product reaches the public. His handiwork helps identify the product with the manufacturer and may include design of trucks, uniforms, stationery and trade-marks in addition to the design and packaging of the product itself.

Designers may be in private practice, serving a number of manufacturers. Some are specialists in related fields, working with engineers, architects, consumer researchers, to create a design. Others are employed by manufacturing plants which are large enough to have their own industrial design departments.

HISTORICAL BACKGROUND

Industrial design, which is devoted to the creation of useful articles that are at the same time attractive, can be said to have its roots in the desire of mankind to surround itself with beauty.

Appreciation of beauty is not the exclusive province of any one people, or any civilization, for that matter. Primitive man decorated his caves with paintings, carved figures on his weapons in a crude attempt at decoration.

Succeeding generations of men have responded to the attempts of the talented few to create works of arts. Only a few artists have been able to achieve masterpieces which have lasted through the ages, found the way to express in different forms the emotions and thinking which reflect the period in which they lived.

The Designer, like the artist, has the enviable gift of being able to translate into concrete form his ideas and feelings and communicate with people on a level they understand and to which they respond.

Art is a subject technically far removed from most of us. We can appreciate the end result without understanding how it was achieved. The same is true of design. We can appreciate the product of the Designer while remaining ignorant of the techniques he employs.

Design is often a matter of intense personal conviction, and the Designer, like the Artist, may be ahead of his times. Public appreciation may be lacking; in fact, the Designer may be strongly criticized for a design which the public is not yet ready to accept.

The Designer today has a difficult problem. His design must result in a

product which reflects function. But a product which is functional alone is not necessarily beautiful. A monotonous display of glass and cement bricks may result in a useful building, but a building which is cold to the eye. He must find a way to make that building warm and inviting. At the same time it must bear his "mark." For just as the work of an artist is easily identified, the Industrial Designer must bring to his art an originality which is his alone.

PERSONAL QUALIFICATIONS REQUIRED

The Industrial Designer is essentially a creative person; an artist first, an engineer second. This is because he must take the bare mechanism of a useful article such as a cigarette lighter and put it in a form which is as aesthetically pleasing as it is functional. Because he is creating a product which must meet public approval he must be sensitive to people and trends, able to produce a design which bears the characteristics of modern civilization. To do this he must have an appreciation of other arts and professions which will influence his thinking just as they influence the other specialists with whom he will work: engineers, architects, etc.

As a creative person, the Industrial Designer must be conscious of shapes and colors, interested in how an article is made and why. His initiative must arouse his curiosity and a determination to seek possible improvement in function as well as appearance.

To do this he must understand present day manufacturing. He must be able to absorb the technical know-how of manufacture enough to enable him to work with tool designers and engineers. He must be familiar with the materials used; manufacturing processes; know their limitations as well as possibilities. He must be able to translate his ideas into two-dimensional and three-dimensional models.

He must also have technical knowledge of the scientific principles which govern the manufacture of the product, be it an airplane, automobile, or television chassis. Only with such knowledge can he create a design which will be contemporary, beautiful, and functional at the same time.

A product is made for consumer sale. An Industrial Designer must be intensely interested in people since their habits and desires are a part of his raw material. He must be familiar with the consumer research techniques to determine public likes and dislikes, but this familiarity will serve him well only if it is combined with a warm and genuine sympathy for peoples' needs and desires. This concern will help him create designs which will be most acceptable to them. Further, the Designer must often explain his work to individuals who are poorly equipped to appreciate it. His ability to establish a rapport with such people and present his ideas to them in clear and simple fashion is very important.

NATURE OF THE WORK

The Industrial Designer is the liaison between consumer and manufacturer. He creates internal and external forms of a wide variety of industrial products, ranging from air-conditioning units to locomotives. His design is the successful culmination of an artistic and engineering endeavor, meeting the need of consumers and appealing to them in appearance and fact.

A manufactured product must meet important requirements. Its form and appearance must be attractive while revealing use and value. However,

though the first concern of the Designer is appearance, his responsibilities go far beyond that. Preparation for manufacture involves a huge investment in tools and dies. The Designer must understand the processes which are involved in manufacture; he must know the materials to be used and what can be expected of them. He must know the scientific principles which must be followed to achieve the most practical but attractive shape. Using his knowledge creatively, he must work out production details with tool designers and engineers.

The final design must encompass distinguishing features and details of form and color which give a manufactured article its outward appearance. Only a person with very special aptitudes, training and experience -- the Industrial Designer -- can create such a design.

The public is most aware of the Industrial Designers' efforts in products which are commonly found in the home: ash trays, electric irons, furniture, lamps, radio and television cabinets, fountain pens. They are also conscious of the packaging of these and other articles. What they are not aware of is the effort that has gone into making these articles beautiful as well as useful and economical.

The services of the Industrial Designer are also utilized in production of things which are not mass-produced. Trains, airplanes and ships must be attractive as well as safe and efficient. The appearance is determined by use and structure. The same principles apply to building of stores, warehouses, office buildings, garages and other structures which will be used to satisfy consumer wants. As in the design of products, success depends on knowledge of the problems of transportation, store layout, purpose, and the needs and desires of the people who will use it.

Designers work in a number of different ways. Some are in private practice; others work for large manufacturers who have their own industrial design departments. Still others work in an organization, with specialists in related fields (engineering, architecture, consumer research) cooperating on product design.

Designs are usually submitted in the form of a drawing or a model made in response to a specific request. Sketches are two-dimensional, models three-dimensional. Engineering and mechanical specifications must be taken into consideration in working out a design, but the Industrial Designer is not required to elaborate on these manufacturing techniques.

WOMEN AS INDUSTRIAL DESIGNERS

At the present time, only a few women are in the field of industrial design. This, however, seems to be a matter of choice rather than discrimination.

Probably few women consider the field because of required educational background, which includes basic courses such as mathematics, mechanical drawing, and learning to read blueprints. However, some do have certain natural aptitudes, such as artistic talents and keen powers of observation, which are important to the profession.

Understandably, women may object to spending time in factories producing heavy machinery or building ships or trains. The dirt and noise may repel them. But other areas of design such as packaging or manufacture of products for the home would seem to be a natural field for them.

There have been some women who have become outstanding Industrial Designers and there is a growing feeling in the profession that more should begin to enter the field. Those with ability to create beautiful products will find they have chosen a satisfactory and remunerative career.

MAJOR FIELDS OF SPECIALIZATION AND EMPLOYMENT

The Free-Lance Industrial Designer.- The Industrial Designer is responsible for the internal and external form of a great variety of industrial products made with the intention of meeting the precise needs of consumers and appealing to them in appearance and in touch. Design of internal workings and external appearance of machinery, electrical appliances, fountain pens, household devices, containers and packaging are among the most commonly observed examples of the Industrial Designer's art. Most designs are submitted in the form of a drawing or model made in response to a specific request. The Free-Lance Industrial Designer is self-employed or works for independent designing firms. In either case, work is done for many products and manufacturers and the range of required designs is extreme, literally from locomotives to toothbrushes.

Today, a manufactured product must not only be well made and efficient in operation but it also must be attractive to the consumer. Its form and appearance must reveal its use and its value. Preparations for manufacture are not complete until the design of the product shows its nature and function with honesty and clarity, and thus makes it attractive to those who will be expected to buy it. The field of industrial design deals with the selection of all the distinguishing features and details of form and color which give a manufactured article its outward quality. It is a specialized activity which requires particular aptitudes, training, and experience. In these days when a huge investment in tools and dies may be needed before the manufacture of a product can begin, the Industrial Designer carries heavy responsibility. In general, then, we can say that the Industrial Designer, with the help of engineers and other specialists, creates the final model of an object, complete in every detail, before it is manufactured by the machinery of mass production.

The Free-Lance Industrial Designer is also asked to do many jobs in which no mass production is involved. Trains, airplanes, and ships must be made attractive to the people who are expected to spend money to ride in them. Here again, making them attractive does not mean applying beauty like a coat of paint. Appearance must be based on use and structure. In this kind of design problem, as in the design of products, success is based on a knowledge not only of the equipment to be designed -- transportation, store layouts, or whatever the problem may be -- but also on a knowledge of the people who will use it. The Designer's experience with consumers is an important part of the skill he offers to his client.

The Automobile Designer.- The Automobile Designer is an artist with a knowledge of merchandising and modern production methods of human engineering, who brings both good taste and creative activity to his work. He is not an engineer or a production expert, but the viewpoint of both specialists is reflected in the design he creates.

The Automobile Designer is an extremely important person in the automobile industry. The function he performs is essential. His work is not confined to simple drawing, for regardless of how well an automobile is made, or its excellence in mechanical achievement, it will not sell or bring repeat orders unless it is well designed and well styled. Hence the Automobile Designer faces

the challenge of creating a design, imaginative in relation to comfort, function and appearance, which will stimulate and achieve mass acceptance. He must have what may be termed "informed instinct" concerning consumer needs and wants and broad style trends which is brought into play long before he puts anything down on his drawing board. This "informed instinct" is a necessary professional tool sharpened by his sincere interest in people, and his warm and genuine sympathy for their habits and needs.

The ability to present ideas is extremely important and will play a large part in the Designer's success. Once he is ready to put his ideas down on paper, the Designer starts to sketch, working until he has accomplished a design which meets every test and is satisfactory from the most critical point of view. Then he makes a finished drawing which is submitted to his superiors and other necessary department heads for approval.

The Furniture Designer.- The Furniture Designer develops and sketches designs for furniture pieces and groups. Essentially an artist, the Furniture Designer also must create models adaptable both to consumer needs and to modern methods of factory production as well. Some Furniture Designers build and finish models, often to full scale; but generally the work is taken only to the point of drawings and diagrams which are transmitted into working plans by draftsmen, pattern makers, and model workers in the employment of a furniture concern which either buys the designs when independently offered, or which has originally commissioned it.

The Package Designer.- The field of Package Design is growing in importance as increasing recognition is given to importance of appearance of modern industrial products.

The Package Designer translates functional, creative and merchandising concepts into industrial design products. His scope is enormous, ranging from a single and simple box for face powder or packaged vegetables to more complicated designs for larger and more bulky products. His field of specialization is the external appearance of the package, the visual attraction, as well as its functional use in the daily life of the consumer. The field of Package Design grows in scope daily as consumer sales reflect immediate reaction to attractive appearance. Modern merchandising and beautiful packaging go hand in hand.

OPPORTUNITIES

Needs in the field still are limited, but so is personnel. There are under 10,000 Industrial Designers, including specialists, practicing now and only an average of 200 students graduating from college each year who have majored in industrial design or just design in general. So it would seem that the profession cannot expand physically to any degree in the immediate future.

But design is beginning to play a most important role in competitive merchandising. Manufacturers are beginning to understand that good design and packaging add immeasurably to sales appeal and employment opportunities will undoubtedly remain good for qualified and experienced Industrial Designers in the next decade. However, the field is in many respects a luxury field and employment opportunities are closely tied to business conditions.

The best opportunities are in the industrial areas: Detroit, New York, Cleveland, etc. It is in these large cities where the greatest amount of manufacturing takes place, especially of consumer goods, that opportunities will

probably increase most.

The field is open in regard to design of devices with respect to simplification of present design, invention of new products, and development of form and appearance to increase sales.

An Industrial Designer preferably may enter private practice and sell his services to a number of manufacturers. Or he may go to work for a large manufacturer and devote his skills and talents to the improvement of products of his employer alone.

GETTING STARTED

The student of industrial design can begin to prepare himself for his future profession by working part time or during the summer vacation. Some students seek such employment in the offices of Industrial Designers, but such jobs are few and not recommended. Most Designers feel that students will profit most by getting merchandising experience, doing consumer research, or working in a manufacturing plant. These jobs will provide them with valuable personal insight into many functions which affect design. In many cases, the employment office of the school will help place the student.

A similar service is available to the graduate student. The American Society of Industrial Designers, 15 E. 48th St., New York 17, N.Y., will also help qualified graduate students find suitable employment in the field. Those living in New York can call Plaza 3-1818, and arrange for an interview. Others can send a resume to the Society detailing education and experience. Every effort will be made by the Society to arrange for an interview outside of New York City.

The resume is important to the graduate student. It should include not only education and experience, but also samples of best work. The rough sketches of inexperienced Designers indicate the work which they do.

Different avenues are open to the young Designer just starting out. He can work for a small studio or enter the employ of a large office to get overall experience in a variety of products.

The large manufacturers often have their own industrial design departments which offer the job security many students want so much today. Positions are also open with some of the smaller manufacturers, with good chances for promotion to the managerial level.

Private practice offers the greatest number of opportunities. But the young Industrial Designer would be wiser to gain practical experience before opening his own office. Other opportunities are being created as a result of Designer and client recognizing what each has to offer in terms of specific relationships.

WHERE EMPLOYMENT IS FOUND

The field of employment has expanded for the Industrial Designer. He is eligible for employment in a simple drafting room, the merchandising department of a manufacturer, advertising agencies, consulting engineering firms, free-lancing in the designing of television sets, vacuum-cleaners, automobiles, refrigerators, etc. All these and many more offer continuous employment to the Industrial Designer.

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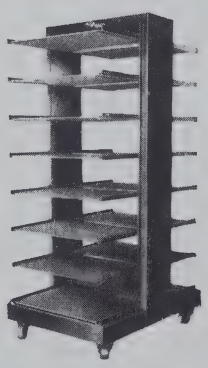

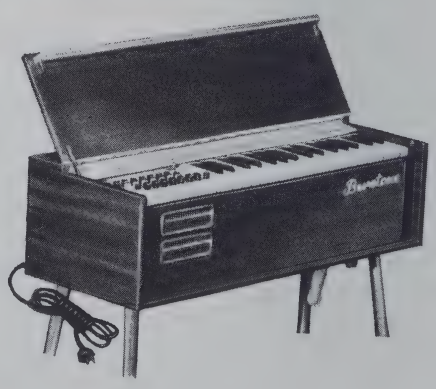

Final Product Appearance and Packaging Always
Needs the Services of the Industrial Designer

There are very few industrial design organizations equipped to handle all phases of industrial design and product engineering, and only about 30 which employ over five full-time Designers. The majority of these firms are in large industrial centers such as New York, Chicago, Detroit, Cleveland, Pittsburgh, Los Angeles, etc. But there are many smaller firms scattered throughout the country. The larger organizations provide a variety of professional work experiences; the smaller ones allow for more initial responsibility. But large or small, the Industrial Designer who finds employment with talented associates has taken the first important step in his career.

Employment is also found with industrial design divisions of large factories. Positions are available as staff members of the department, or as free-lancers working on specific projects, assisting other Designers who are on the plant's permanent payroll.

The greatest number of work opportunities for the Industrial Designer with initiative lies in private practice. There are currently over 30,000 manufacturers in the United States who could use the skills of Industrial Designers profitably. Less than 5,000 have done so. The others are waiting to be convinced. The Industrial Designer who has enough drive to seek them out will find he can sell his services with comparative ease.

REMUNERATION

It is somewhat difficult for the young Designer to get started and he often must serve an apprenticeship as a draftsman or model maker. During this period, which lasts an average of 2 years, he will earn a salary ranging from $65 to $80 a week.

Promotion then is first to Designer and then to Design Project Leader, which will pay a salary up to $125 a week depending upon ability, previous experience and technical training.

Since the field itself is young, the Industrial Designer will find that from this point on his career is in his own hands. What he accomplished will be according to his skill. Experienced and highly competent Designers will move into upper bracket jobs as Associate Designers and Chief Designers. Those who have created designs which have been outstandingly successful can go into private practice and earn from $10,000 to $25,000 and over annually.

The profession generally offers incomes which compare favorably to those found in architecture and engineering. Designers who reach an executive level will find salaries limited only by personal talents.

EDUCATIONAL BACKGROUND REQUIRED

Professionals in the field agree that at present the courses offered in industrial design do not adequately prepare students to handle the practical as well as the creative aspects of the field. This is scarcely surprising, since industrial design is so new a profession. However, it should not be too long a period of time before curriculums are determined which will meet all requirements.

The Industrial Designer is called upon to perform many functions; he must possess artistic, engineering, and merchandising know-how. His education must be laid out carefully to provide training in applied art, practical details of manufacture, and merchandising techniques. Such comprehensive

knowledge can be acquired only on a professional level.

The student whose training is limited to commercial art, for example, can find a job in an industrial design office, but only as a renderer or a visualizer. He cannot become a full-fledged Designer without a background in engineering, merchandising, and business.

There is a marked trend toward specialized training and the student considering industrial design as a career should understand that a degree will be of increasing importance. There are technical institutes with courses leading to an associate degree in arts and approximately 25 schools and universities which provide a four or five year program in industrial design.

High School Diploma.-

The high school student considering industrial design should plan on advanced education in a technical institute or college. He should, therefore, take an academic program which will admit him to the school of his choice. But in addition to required subjects he should try to include as many technical and science courses as he can in his curriculum: mechanical drawing, art, etc.

Technical Institutes or Vocational Schools.-

Technical schools usually offer practical training in industrial design in accelerated courses ranging from 18 to 24 months. The curriculum is designed primarily for students who do not have the time or desire to spend four years in college but are still interested in a specialized training.

The courses offered in these vocational institutes cover major background necessary and graduates of the institutes have been able to achieve success in the profession. However, they have had many obstacles to overcome and have found that the gaps in their education had to be filled in with years of working experience.

Generally students who complete the programs in the technical institutes are given an associate degree.

Professional Training.-

As been indicated previously, it is becoming increasingly important for the Industrial Designer to have a broad professional education. The fundamental principles of design are too many to be covered in the narrow program available in vocational schools.

There have been questions raised as to what constitutes necessary training, and what educational background is necessary for successful performance in the field. Industrial Designers work with other professionals such as the architect and the engineer and in many instances their functions overlap.

It is true that architectural training provides much knowledge vital to industrial design, particularly knowledge of building methods and structural design. And architects work closely with Industrial Designers in creation of structures: filling stations, office buildings, even design of commercial interiors. But industrial design is based on more than architecture it is the result of knowledge of merchandising and selling techniques, and product engineering.

Are engineers ,then ,qualified Designers? It is true that product engineering is an important part of design but the Designer does not need to have the advanced mathematics and technical knowledge necessary to engineers. The engineer, on the other hand, does not have the background in art and business so vital to the practice of industrial design.

The Industrial Designer must have an educational background which enables him to master facts and principles which govern the complex industrial world of today. He must study all the component elements of design -- art, science, and technology -- and know their basic relationship to each other, as well as their role in design. Mathematics, physics, and engineering, for example, will help the student understand space perception, light, color, form -- all the physical aspects of environment.

The student will also study the liberal arts in order that he may have a cultural background which he can bring to his design. For only when he understands our history will he be able to interpret the present and predict the future.

The would-be Industrial Designer must understand the machines which will turn out the products he designs; know materials and what they can do. He will, therefore, take courses which will provide necessary background.

Well organized programs are offered throughout the country by colleges and universities which include these essentials. The four year course leading to a degree of bachelor of science in product design offered by the Illinois Institute of Technology - The Institute of Design - stimulates both the intellect and the emotions.

PROFESSIONAL AFFILIATIONS

There are two national organizations in the profession: the American Society of Industrial Designers and the Industrial Design Institute. Both have regional and city chapters throughout the country which offer information on employment opportunities and report on developments in the field.

ADVANTAGES

This is an interesting field which enables creative persons to utilize their artistic talents in a lucrative career. The Industrial Designer derives great joy from creating designs which he knows will be seen and appreciated by millions of people.

The work itself is never monotonous. One day the Industrial Designer is concerned with problems of design of a cigarette lighter; his next project may be design of a tractor or layout of a warehouse. Each problem is different, and he is always able to exercise the initiative that is characteristic of the artistic person.

The Industrial Designer is in constant touch with many interesting people. He works with other specialists -- architects, engineers, tool designers -- and broadens his own knowledge as a result of their cooperative efforts. Often these business discussions lead to profitable business contacts as well as close personal relationships.

The field is a broad one. The Industrial Designer who finds himself working in a specialization which for one reason or another is declining can easily switch

to another area of industrial design. The possibilities are many, and since the profession is understaffed, he will have a choice of fine positions open to him.

Not to be underestimated is the nature of the work itself. There is scarcely a field of endeavor which does not benefit in someway from the application of industrial design. The Designer benefits financially from his work, but equally gratifying is the fact that his daily efforts contribute to the good and welfare of the public. He know that he is contributing to America's industrial progress, helping to achieve a higher living standard for our people.

DISADVANTAGES

The person who is first and foremost an artist may find it difficult to reconcile his artistic ambitions with the realities of business life. He may balk at sacrificing some aspect of his design to the practical considerations of product engineering, or the demands of a manufacturer more interested in economy than beauty.

Getting started may be difficult for the Industrial Designers who are wrapped up in their artistic abilities and find it difficult to "sell" themselves and their designs. The need to do so can be a most unpleasant experience for a sensitive person. The apprenticeship which the young Industrial Designer often serves on the job can be drudgery, for he is given the less creative jobs of making numerous sketches and detailed drawings which are the product of another person's thinking.

Working hours may be long, particularly when an important job is at hand. Pressure to complete designs is heavy and further complicated by the knowledge that if the Designer has incorrectly interpreted consumer trends or needs, the manufacturer may incur a heavy loss.

The field of design is constantly being revolutionized by new ideas, new innovations, new methods of manufacture, new materials. The Industrial Designer must keep abreast of every new development which will affect his work in any way at all and, as a result, his days of studying are never over. As long as he works at his career, the Industrial Designer must sharpen his skills and seek ways of enlarging his sphere of knowledge of his craft.

The entire field of design -- and all the specializations within it -- serve highly competitive industries which are strongly affected by adverse economic conditions within the nation. Since design, with the possible exception of commercial art and advertising, is considered a luxury item, it is affected immediately by a decline in business activity unless employed by a large manufacturer.

Also it is generally true that opportunities for employment in any area of specialized design are limited until the designer has proved himself competent and creative.

FINANCING AN EDUCATION IN THE FIELD OF INDUSTRIAL DESIGN

National Defense Student Loan Program.-

According to the provisions of the National Defense Student Loan Act of 1958, loans for education which are granted to a student must not exceed $1,000 in any year, or $5,000 overall. Repayment is to be made in installments over a 10-year

period beginning one year after the student completes or drops his studies in higher education. No interest charge and no repayment of principal will be required while the student is enrolled full time in a college or university, or during military service (not over three years). When the loan is being repaid, interest at 3 percent is to be charged. No security will be required of student borrowers except that in certain states minors may be required to provide the cosignature of an adult or other security. In case of death or permanent and total disability, the debt is to be canceled.

The National Defense Education Act contains a further provision that up to 50 percent of a loan (plus interest) may be canceled in the event the borrower becomes a full-time teacher in a public elementary or secondary school. Such cancellation is to be at the rate of 10 percent a year up to 5 years.

National Register of Scholarships and Fellowships.-

The National Register of Scholarships and Fellowships by J. L. Angel provides a comprehensive record of all available assistance. The register, which has been divided into two volumes to facilitate its use, is on the shelves of most libraries. It can be ordered directly from the World Trade Academy Press, Inc., 50 East 42nd St., New York 17, N. Y. Vol. 1 - Register of Scholarships and Loans, and Vol. 2 - Register of Fellowships and Grants are $ 13.00 each. They may be ordered separately.

Scholarships, Fellowships and Programs in Industrial Design.-

Educational Institutions	Programs in Ind. Design	Scholarships	Fellowships
Alabama Polytechnic Institute	*		
Art Center School, Los Angeles, Calif.	*		
California College of Arts and Crafts	*		
Occidental College, Calif.		4	
University of California, Los Angeles	*		
Univ. of Southern California	*		
University of Bridgeport, Conn.	*		
Bethune-Cookman College, Fla.		50	
Georgia Institute of Technology	*		
Chicago Art Institute, Ill.	*		
Illinois Institute of Technology	*		
University of Illinois	*		
University of Kansas, Lawrence	*		
Kansas State Coll. of Agriculture & Applied Science			4
University of Maryland		3	
Boston University, Mass.		1	
Cambridge School of Design, Mass.	*		
Massachusetts Institute of Technology	*		
Cranbrook Academy of Art, Bloomfield Hills, Mich.	*		

Educational Institutions (Cont.)	Programs in Ind. Design	Scholarships	Fellowships
Michigan State University	*		
University of Michigan	*		
Wayne State University, Mich.	*		
Minneapolis School of Art, Minn.	*		
State Teachers College, Mankato, Minn.		1	
Jackson College, Miss.		3	
Kansas City Art Institute, Mo.	*		
N.J. State Teachers College, Trenton		1	
Columbia University, N.Y.	*		
N. Y. State Institute of Applied Arts and Sciences, White Plains		3	
Pratt Institute, Brooklyn, N.Y.	*		
Syracuse University, N. Y.	*		
Akron Art Institute, Ohio	*		
Cleveland Institute of Art, Ohio	*		
Kent State University, Ohio	*		
School of Dayton Art Institute, Ohio	*		
University of Cincinnati, Ohio	*		
Multnomah College, Oregon		12	
Carnegie Institute of Technology, Pittsburgh, Pa.	*	20	
Philadelphia Museum School of Art, Pa.	*		
Rhode Island School of Design, Providence	*		
University of Tennessee			2
Dixie Junior College, Utah		1	
Utah State Agricultural College			2
Weber College, Utah		9	
State College of Washington		1	
University of Washington, Seattle	*		
Stout State Institute, Wis.		22	

Private Foundation and Organizations		
Altrusa Club of Nashville, Tenn.	Loans	
American Academy in Rome. 101 Park Ave., New York 17, N. Y.		Fellowships
American Automobile Assn. 17th St. & Pennsylvania Ave., Washington 6, D. C.		Grants
American Leaders Foundation. 506 Spruce St., Scranton 2, Penna.		Grants
Bollingen Foundation, Inc. 140 E. 62nd St., New York 21, N.Y.		Fellowships
Boys' Clubs of America. 381 Park Ave. South, New York 16, N.Y.	Scholarships	
California State Fair. State Agricultural Society, P. O. Box 2036, Sacramento, Calif.	Scholarships	
Carnation Company. P. O. Box 2035, Wilshire-La Brea Station, Los Angeles, Calif.	Scholarships	

Private Foundations and Organizations (cont.)

Wm. H. Chapman Foundation. 205 Manwaring Bldg., New London, Conn.	Grants
Children's Aid Association, Inc. 3 Walnut St., Boston 8, Mass.	Scholarships
Edward Scholarship Fund. 49 Federal St., Boston, Mass.	Scholarships
Ch. Fleischmann Endowment. Provident Savings Bank & Trust Co., Cincinnati, Ohio	Grants
A. M. Frank Scholarship Foundation, Inc. West Linn, Oregon.	Scholarships
Handy and Harman. 82 Fulton Street, New York 38, N.Y.	Scholarships
Huntington Hartford Foundation. 200 Rustic Canyon Rd., Pacific Palisades, Calif.	Fellowships
Lane Bryant Twenty-Five Year Club, Inc., 465 5th Avenue, New York 17, N.Y.	Scholarships
The Latham Foundation for the Promotion of Humane Education. Box 1322, Stanford, Cal.	Scholarships
Metropolitan Museum of Art. New York 28, N.Y.	Fellowships
Institute of International Education. 1 East 67th St., New York 21, N.Y.	Scholarships
Music and Art Foundation. Medical Arts Bldg., Seattle 1, Washington .	Scholarships Grants
National Academy of Design. 1083 Fifth Ave., New York 28, N.Y.	Scholarship
National Institute of Arts and Letters. 633 W. 155th St., New York 32, N.Y.	Fellowship
Leopold Schepp Foundation. 551 Fifth Ave., New York 17, N.Y.	Scholarships
Scholastic Magazines. 33 W. 42nd St., New York 36, N.Y	Scholarships
Horace Smith Fund. 5 El Street, Springfield, Mass.	Loans
The John F. & A. L. Stacey Scholarships Fund. 2401 Wilshire Blvd., Los Angeles 5, Calif.	Scholarships
University of Illinois. Urbana, Ill.	Fellowship
The Virginia Museum of Fine Arts . Blvd. and Grove Ave., Richmond 20, Va.	Fellowships
Maud E. Warwick Fund for War Orphans, Inc. 551 Fifth Ave., New York 17, N Y.	Scholarships
John Hay Whitney Foundation. 30 Rockefeller Plz., New York 20, N.Y.	Fellowships
Jewish Vocational Service of Boston . 72 Franklin St., Boston 10, Mass.	Scholarships
Woolley Foundation Scholarships. c/o Inst. of International Education. 1 E. 67th St.,New York, N. Y.	Scholarships

WHERE TO SECURE MORE INFORMATION ABOUT INDUSTRIAL DESIGN

Professional Organizations.-

American Artists Professional League, 154 West 54th St.,New York, N.Y.
American Designers Institute, 441 Madison Ave., New York, N.Y.
American Society of Industrial Designers, 15 East 48th St.,New York 17, N.Y.
Intl. Federation of Art Education, Drawing and Art Applied to Industry, 1111 West 10th St., Milwaukee, Wis.
The Society of Automotive Engineers, 29 West 39th St., New York 18, N.Y.

Occupational Literature in the Field of Industrial Designing.-

American design: portfolio of tools, utensils, gadgets and devices. Magazine of Art. October, 1950
Art and the machine. W. & M. Cheney. New York, N.Y. Whittlesey House. 1945
Automobile design. Brooklyn, N. Y. Pratt Institute. 1955
Careers for specialized designers. J. L. Angel. New York, N.Y. World Trade Academy Press .1957
Careers in design, decoration and commercial art. J. L. Angel. 2nd ed. New York, N. Y. World Trade Academy Press.1957
Careers as industrial designer. Washington, D. C. B'nai B'rith Vocational Service. 1954
Careers in industrial design. Brooklyn, N.Y. Pratt Institute. 1955
Craftsman role in industry. D. Wallace. Craft Horizon. Jan. 1951
Courses in industrial design.- A list of schools. New York, N. Y. Society for Industrial Designers, Inc. 1959
Design and public appreciation. Art & Industry. June , 1952
Design as a function of management. E. Jacobson. American Ceramic Society Bulletin. January 15, 1955
Handbook of engineering data for design engineers. Medford, Mass. Tufts College. 1949
How industrial designers should be trained. New York, N.Y. Society of Industrial Designers. 1958
IDA and you. New York, N.Y. Industrial Designers' Institute. 1954
Industrial Design. Syracuse, N. Y. Syracuse University. 1953
Industrial Design. R. R. Kostellow. Brooklyn, N. Y. Pratt Institute. 1958
Industrial designer. Moravia, N. Y. Chronicle Guidance Publications. 1956
Industrial design as a career. New York, N.Y. Society of Industrial Designers, Inc., 1956
Industrial designers. Chicago, Ill. Science Research Associates. 1954
Industrial design. Syracuse, N. Y. Syracuse University. 1953
Industrial design. Van Doren. New York, N. Y. McGraw-Hill. 1949
Industrial design: the art of being practical. H. Dreyfus. Machine Design. November, 1954
Industrial design in America. Soc. of Industrial Designers. New York, N.Y. Farrar,Straus & Young. 1954
Industrial design as a career. Chicago, Ill. Institute for Research. 1948
Industrial designer and the arts. A. B. Galion. Royal Architectural Institute. January, 1951

Is your career industrial designing? G. Rhode. Industrial Design. Nov., 1950
Occupational outlook handbook. Washington, D. C. Supt. of Documents. 1959
Package design. Brooklyn, N. Y. Pratt Institute, 1954
Profit is the real yardstick of design. Steel. Nov. 22, 1954
Reflections on a completion for product designers. D. W. Buchanan. Art 8, No. 4. 1951
Undergraduate catalog. Announcements for 1957-59 Sessions. Chicago, Ill. Illinois Institute of Technology. 1957

Visual Aids Materials in Design.-

Art and You. For elementary, junior , high school students. Explains that art is a way in which we express our feelings and thoughts about ourselves or about the world of people and nature in which we live. 11min. Sound, black and white. Film Associates. 1958

Art As A Common Human Possession. For colleges and adults. Discusses the nature of art and its role in human life. 29min. Sound, black and white. Great Ideas Service. 1954

Art As Communication. For high school, college students, adults. Discusses line, form, and symbol as conventional devices for communication in the visual arts. 29min. Sound, black and white. Arts Around Us Service. 1956

Art As Order. For high school, college students, adults. Shows with charcoal sketches how order is achieved by the painter, designer, or architect working with the elements and materials of his specialty. 29min. Sound, black and white. Art Around Us Service. 1956

Design. For junior, high school, college students, adults. Offers a non-technical formula for basic design through the use of animated drawings. 10min. Sound, black and white. Bailey Films, Inc. 1955

Design for Sentiment. For junior, senior high school, college students, adults. Tells of the origin of greeting cards and how cards are created and produced. 26min. Sound, black and white. Bay State Film Productions. 1955

Design In Silver. For junior, senior high school, college students, adults. Steps in the creation of a piece of hand-made jewelry. 10min. Sound, black and white. Lobett Productions. 1954. LC card Fi A 55-072

Designed For Living. For high school, college students, adults. Defines good design, for the consumer, in choosing household articles ranging from kitchen utensils to living room furniture. 11min. Sound, black and white. National Film Board of Canada. 1956. LC card Fi A 57-057

Industrial Education In Your Future. For high school students. Explains how a high school student's interest in industrial vocations may be directed towards a college career in industrial education or industrial technology. 21min. Sound, color. Free loan. Stout State College. 1956

Industry On Parade Series. For elementary, junior, senior high school, college students, adults. A series of newsreels about the people, products and activities of American industry. 13½min. Sound, black and white. Free loan to schools. National Assn. of Manufacturers. Issued since 1950

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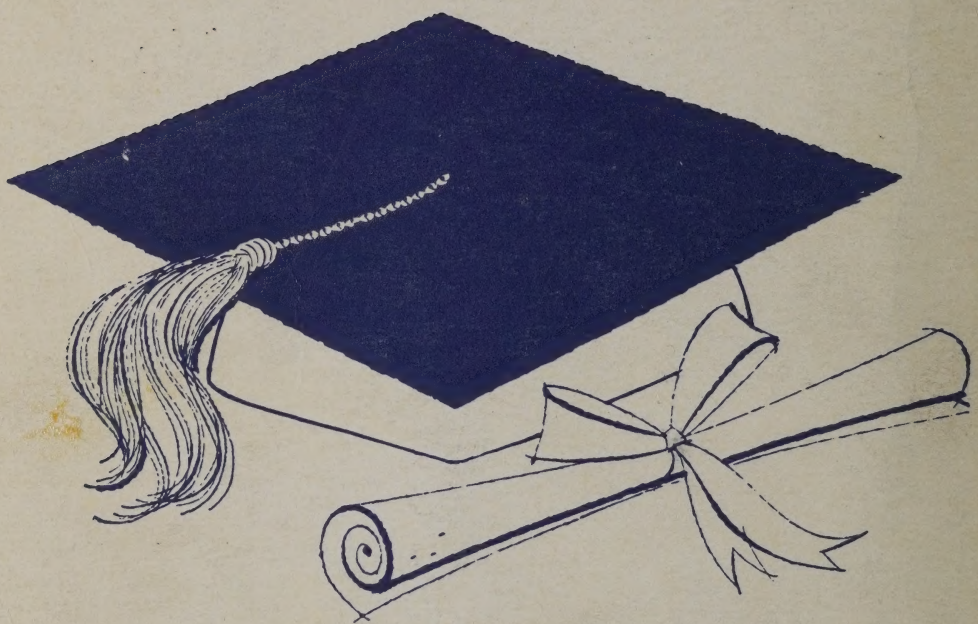

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